Current status of LTSKG

(Precise geometric correction)

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1. Software development

1. First version of software was already implemented on EORC computer. (FY2000)

2. Test run is now in progress.

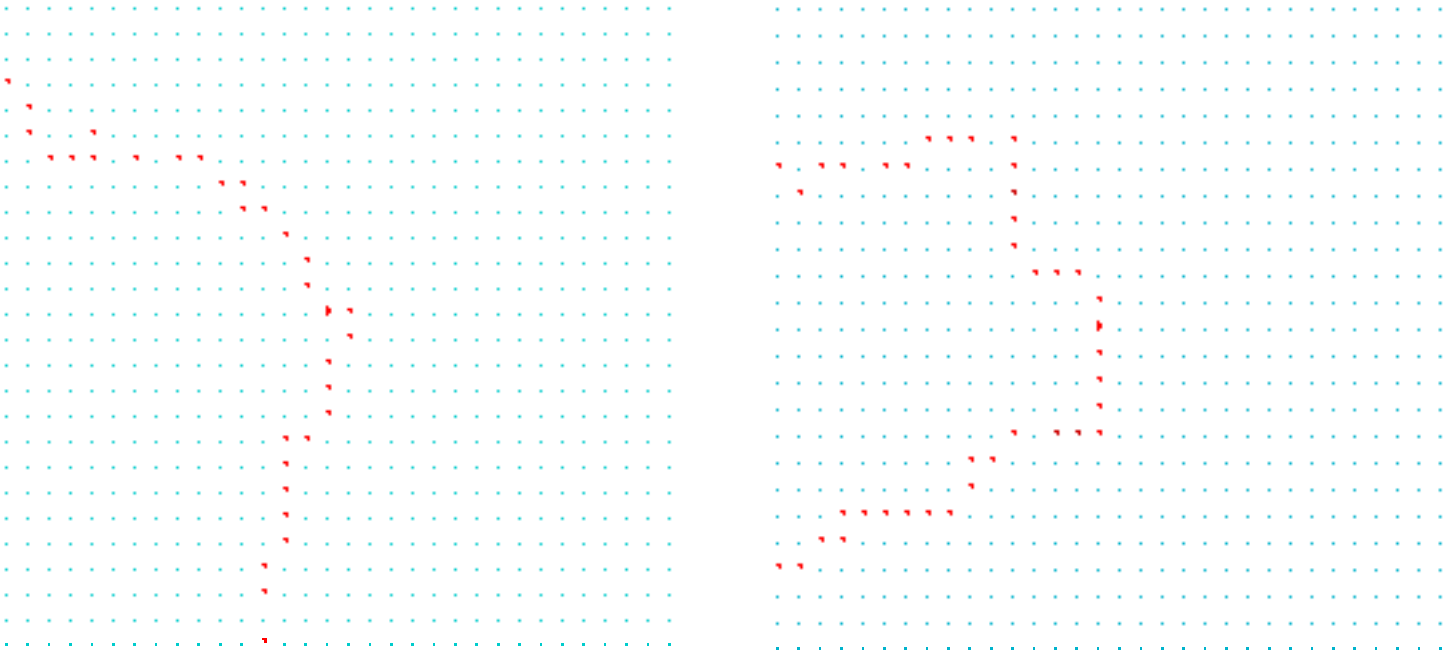
   (late preparation of simulation data)

3. Supplemental function has been developed.

   * GCP collection from the inside of continents.

4. GCP library has been modified.

* Suitable location varies with the resolution.



250m

1km

5. **Preparation of the correction of sensor alignments is advancing.**

6. **Software for MODIS was developed.**

Experiments using MODIS data

1. Evaluation of geometric accuracy by system correction

* methodology

(1) 45 images covering around Japan were used.

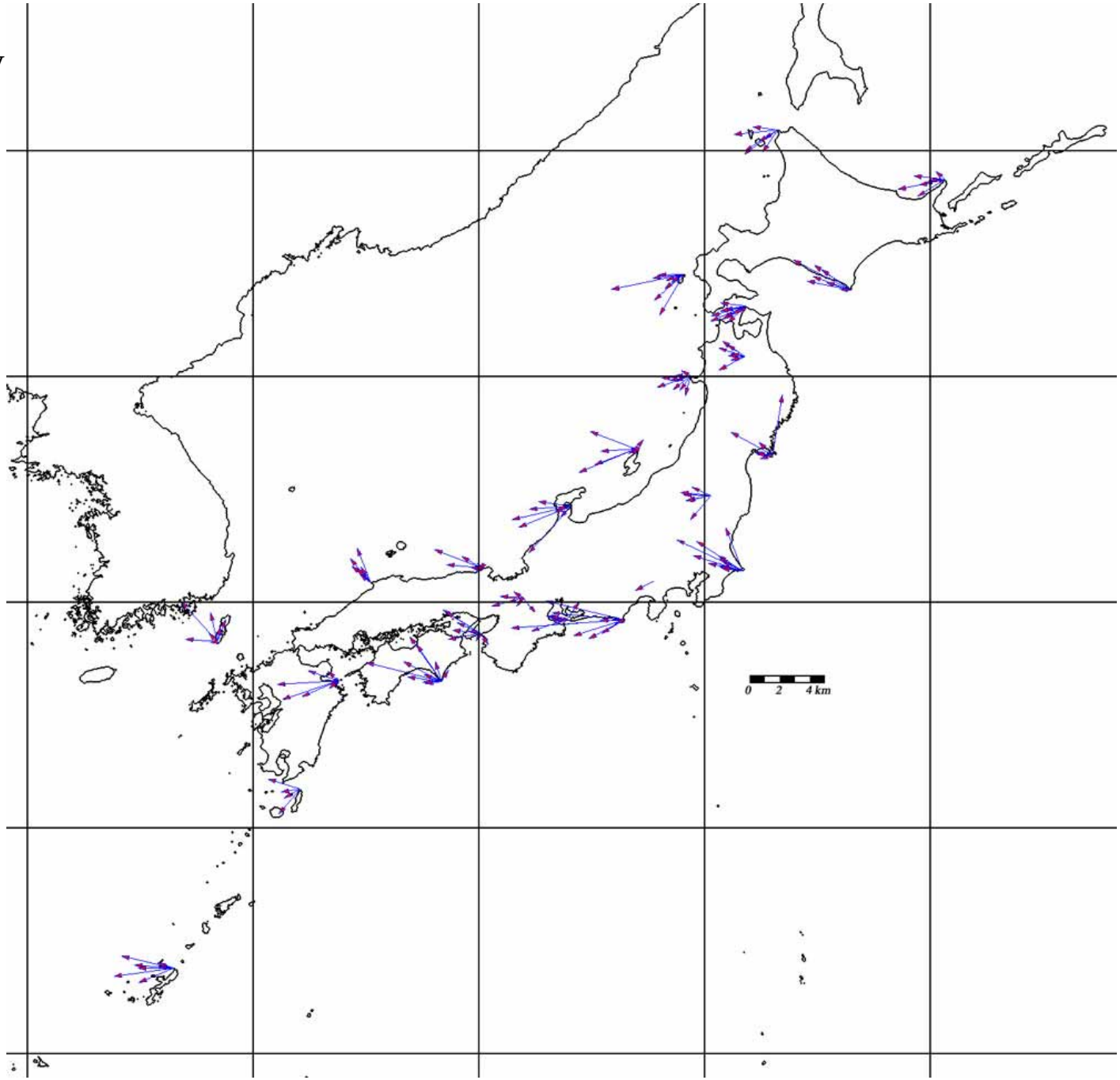
(2) 24 sites were selected as check points.

(3) Image coordinates of check points were extracted manually.

(4) Corresponding geodetic coordinates were derived from both Geolocation data in Level 1A and topographic maps.

(5) Compare both geodetic coordinates

Error distribution by system correction



* results

(1) The accuracy is about 2 kilometers on the ground.

(2) Most of the error vectors were pointed in the direction of west.

→ They were static. → misalignment

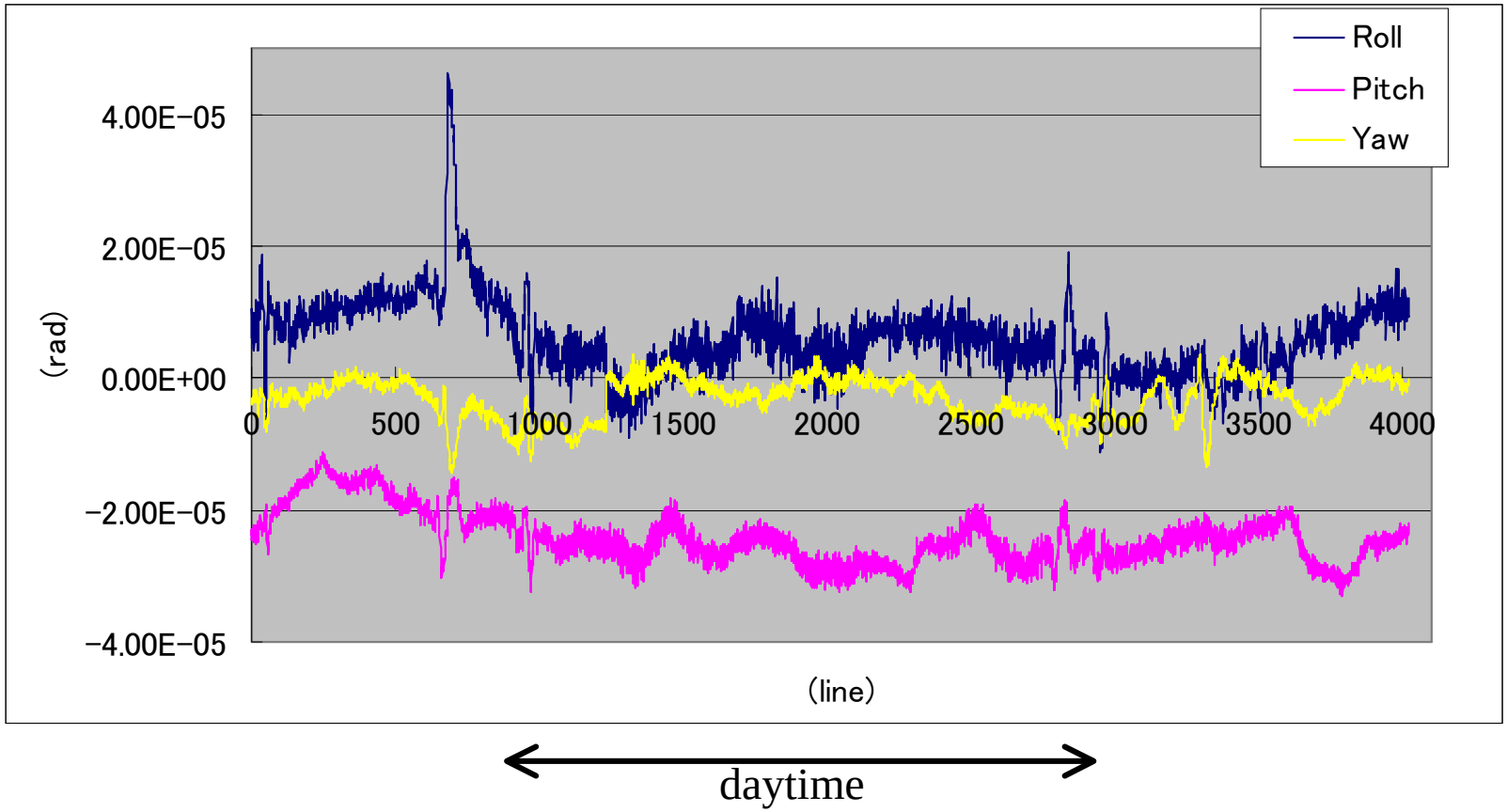
2. Modification of sensor alignments

The sensor alignments were modified to reduce such static errors.

After the modification, geometric accuracy is improved

less than 1 kilometer.

3. Fluctuation of attitude



daytime

Attitude error (rad.) to induce 1 pixel error (250m)
roll : 2.7E-4, pitch : 2.2E-4, yaw : 1.7E-4

(1) Magnitude of actual attitude : order of 10^{-5}

Variances of actual attitude : order of 10^{-5}

Limitation of 1 pixel error : order of 10^{-4}

→ The influence of attitude is not so serious

(2) The expression of attitude by polynomial is adaptable.

$$X = X_0 + X_0 L + X_0 L^2 + \ldots$$

4. Conclusion

If the geometric properties of GLI is as same as those of MODIS,

(1) The modification of sensor alignments will lead to the geometric accuracy of less than 1km.

(2) The attitude will not be so serious.

MODIS vs GLI : same level of geometric properties?